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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/570,141	03/01/2006	Kazutaka Hara	062189	5071

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EXAMINER	
CHOI, JACOB Y	

ART UNIT	PAPER NUMBER
2885	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/570,141	HARA ET AL.	
	Examiner	Art Unit	
	JACOB Y. CHOI	2885	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) *1-7 and 23-26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-22,27 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 March 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :3/1/2006, 6/21/2006, 5/14/2008, 8/20/2008, and 11/12/2008.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 3/1/2006, 6/21/2006, 5/14/2008, 8/20/2008, and 11/12/2008. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Election/Restrictions

Applicant's election without traverse of Species (II) in the reply filed on July 14, 2008 is acknowledged. Claim **23** is depended on independent claim 1, Species (I). Accordingly, the claim **23** has not been further treated on the merits.

Claim Objections

Claim **20** is objected to because of the following informalities: the linking terms "*and/or*" is considered indefinite since the resulting clam does not clearly set forth the metes and bounds of the patent protection desired. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims **8, 12, 13, 14, 16-18, 20-22, 27, & 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber et al. (USPN 6,025,897).

Regarding claim **8**, Weber et al. discloses a transmittance angle dependent (Abstract; "*... multiple layer reflective polarizer 12 ... reflective polarizer reflects some light into the optical cavity 24 where it is randomized and may ultimately emerge with the correct polarization to be transmitted out of the display*") polarizing layer (12) which transmits a polarized light component of one direction of polarization in normal incident light (column 3,lines 25-65; "*... ray bundle is incident on the reflective polarizer 12 which transmits light having a first polarization orientation referred to as"(a)" and effectively reflects light*"), and selectively reflects the other polarized light component and reflects obliquely incident light regardless of a direction of polarization is disposed on one surface of the sidelight type backlight light guide plate (e.g., FIG 2), and a reflection plate (e.g., 37, 36, & 39) having a discontinuous reflective structure (columns 3-4, lines 25-15; "*... It should be appreciated that a diffuse reflective surface ... can be formed of transparent surface textured polycarbonate*") is disposed on the other surface of the sidelight type backlight light guide plate (e.g., 30 & 34).

Weber et al. fails to include details of the reflection plate having a respective slope structure.

However, Weber et al. suggest that in columns 3-4, lines 25-15; "*... It should be appreciated that a diffuse reflective surface ... can be formed of transparent surface textured polycarbonate*".

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize specifically shaped reflection plate, since the examiner takes Official Notice of the equivalence of discontinuous diffusely reflective structure in combination with reflective layer 39 of Weber et al. to recirculation and randomization process of light reflected by the light cavity 24 compare to other shapes of reflective surface that is equivalent to recalculate the light would be within the level of ordinary skill in the art.

Regarding claim 12, Weber et al. further discloses the transmittance angle dependent polarizing layer transmits one of linearly polarized lights perpendicular to each other, while selectively reflecting the other thereof (FIG 8; column 7, lines 20-40; "*... axis 228 represents the angle that the light ray makes to a normal to smooth surface 220 when the direction of the light ray is projected into a plane perpendicular to the linear extent of the structures on structured surface 222*").

Regarding claim 13, Weber et al. further discloses the transmittance angle dependent polarizing layer is multilayer laminate made of polymers having a birefringent anisotropy (e.g., column 14, lines 5-15; "*... three general categories of materials: isotropic, uniaxially birefringent, and biaxially birefringent*").

Regarding claim 14, Weber et al. further discloses the transmittance angle dependent polarizing layer is a polarizing element in which a retardation layer (FIG 4 & 14) is inserted between at least two reflection polarizer having wavelength bands (e.g., FIG 5, 22, & 26-40), overlapped on one of the other, of selective reflection of polarized light (12).

Regarding claims 16-18, Weber et al. further discloses the reflection polarizer is a linear polarization type reflection polarizer transmitting one of linearly polarized lights perpendicular to each other (FIG 8; column 7, lines 20-40; "*... axis 228 represents the angle that the light ray makes to a normal to smooth surface 220 when the direction of the light ray is projected into a plane perpendicular to the linear extent of the structures on structured surface 222*"), while selectively reflecting the other thereof (Abstract; "*... multiple layer reflective polarizer 12 ... reflective polarizer reflects some light into the optical cavity 24 where it is randomized and may ultimately emerge with the correct polarization to be transmitted out of the display*"), the retardation layer (FIG 4 & 14) is comprises a layer having a front retardation of almost zero and a retardation of λ/4 disposed on both sides of the layer or two biaxial retardation layer each having a front retardation of about λ/4 and Nz coefficient of 2 (FIG 8; column 7, lines 20-40) or more or one biaxial retardation layers having a front retardation of about λ/2 and Nz coefficient of 1.5 or more (FIG 8; column 7, lines 20-40), one of the layers being disposed between the retardation layer and a corresponding linear polarization type reflection polarizer and the other of the layers being disposed between the retardation layer and another linear polarization type reflection polarizer, the layer on the incidence side is arranged at an

angle of 45° (-45°) ± 5° relative to the polarization axis of the linear polarization type reflection polarizer on the incidence side (column 18, lines 20-30; "*... a low color polarizer is desirable ... preferably at least 45 degrees from the normal*" & column 33, lines 50-65; "*... reflective polarizer desirably has % RMS color in the transmitted polarization ... at angles orthogonal to the polarization of at least 30 degrees, more preferably at least 45 degrees, and even more preferably at least 60 degrees*") , the layer on the emission side is arranged at an angle of 45° (-45°) ± 5° relative to the polarization axis of the linear polarization type reflection polarizer on the emission side, and the layer on the incidence side and the layer on the emission side are arranged at an arbitrary angle (FIG 8) formed between the respective slow axes thereof (column 11, lines 50-65; "*... reflectivity for p polarized light decrease slowly with angle of incidence, are independent of angle of the incidence, or increase with angle of incidence away from the normal ... multilayer stacks having high reflectivity for both s and p polarized light over a wide bandwidth, and over a wide range of angles can be achieved*").

Regarding claim 20, Weber et al. further discloses an optical layer having a function to cancel ("b", 156 (b,c,d), 157 (a,b,c,d)) polarization of light reflected by the transmittance angle dependent polarizing layer is disposed between the transmittance angle dependent (FIG 8) polarizing layer and the sidelight type backlight light guide plate and/or between the sidelight type backlight plate and the reflection plate (FIGS 2, 7, 9, & 11).

Regarding claim 21, Weber et al. further discloses the optical layer having polarization canceling ability is placed on a surface of the repetitive slope structure of the reflection plate.

Regarding claim 22, Weber et al. further discloses the optical layer having polarization canceling ability is a retardation plate.

Regarding claim 27, Weber et al. further discloses an average slope angle Θ_2 of the repetitive slope structure of the reflection plate disposed on one surface of the sidelight type backlight light guide plate has the following relation to a peak angle Θ_1 in an emitting light direction of the sidelight type light guide plate: $\Theta_2 = (\Theta_1 / 2) \pm 10°$ (FIG 7; columns 6-7, lines 65-20; "*... prism having peak angles in the range of 70 degrees to 110 degrees will work with varying degrees of effectiveness with the invention*"). It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 233.

Regarding claim 28, Weber et al. further discloses a liquid crystal cell (FIG 10), and a polarizing plate (e.g., 149 & 150) disposed on both sides of the liquid crystal cell. (147).

Claims **9, 10, 11, 15, & 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber et al. (USPN 6,025,897) in view of Albro et al. (USPN 6,403,223).

Regarding claim 9, Weber et al. teaches the transmittance angle dependent polarizing layer transmits a polarized light, while selectively reflects a reverse circularly polarized light.

However, failed to include details of the circularly polarized light.

Albro et al. teaches the polarizing layer transmits a circularly polarized light.

It would have been to one having ordinary skill in the art at the time the invention was made to utilize other types of polarizer, circular polarizer, to correct polarization of the display device.

Regarding claim 10, Weber et al. in view of Albro et al. disclose the claimed invention, as explained above. In addition, Weber further teaches the transmittance angle dependent polarizing layer comprises at least one cholesteric liquid crystal polymer layer (column 4, lines 40-50; "... *reflective polarizer 12 is made of alternating layers ... of two different polymeric materials* ... etc.").

Regarding claim 11, Weber et al. in view of Albro et al. disclose the claimed invention, as explained above. In addition, Weber further teaches the transmittance angle dependent polarizing layer is a cholesteric liquid crystal band-pass filter (column 11, lines 50-60; "... *multilayer stacks having high reflectivity for both s and p polarized light over a wide bandwidth, and over a wide range of angles can be achieved*").

Regarding claims 15 & 19, Weber et al. discloses the reflection polarizer is a polarization type reflection polarizer transmitting polarized light, while selectively reflecting reverse polarized light (Abstract; "... *multiple layer reflective polarizer 12 ... reflective polarizer reflects some light into the optical cavity 24 where it is randomized*

and may ultimately emerge with the correct polarization to be transmitted out of the display"), and the retardation layer (e.g., FIG 4) comprises a layer having a front retardation (FIG 8; column 7, lines 20-40) of almost zero and a retardation of λ/8 or more relative to incident light incoming at a direction inclined from the normal direction by 30 degrees or more (column 18, lines 50-30; column 33, lines 50-65; "*... more preferably less than 2.1%, at angles orthogonal to the polarization of at least 30 degrees*").

However, failed to include details of the circularly polarized light.

Albro et al. teaches the polarizing layer transmits a circularly polarized light.

It would have been to one having ordinary skill in the art at the time the invention was made to utilize other types of polarizer, circular polarizer, to correct polarization of the display device.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hattori et al. (US 2003/0001809) – liquid crystal display device, method for manufacturing the same, and method for driving a liquid crystal display device

Davis et al. (USPN 5,808,709) – illuminator with polarization separating anisotropic layer between light guide and reflector

Ouderkirk et al. (USPN 6,124,971) - transflective displays with reflective polarizing transflector

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB Y. CHOI whose telephone number is (571)272-2367. The examiner can normally be reached on Monday-Friday (10:00-7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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